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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/535,303	03/24/2000	Yasuaki Namura	32430	2303
116	7590	04/08/2004	EXAMINER	
PEARNE & GORDON LLP			TRAN, KHANH C	
1801 EAST 9TH STREET			ART UNIT	PAPER NUMBER
SUITE 1200			2631	
CLEVELAND, OH 44114-3108			DATE MAILED: 04/08/2004	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/535,303	NAMURA, YASUAKI	
	Examiner	Art Unit	
	Khanh Tran	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 January 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 7-10, 17-21 and 30 is/are allowed.
 6) Claim(s) 1-3, 11-13, 22, 25 and 28 is/are rejected.
 7) Claim(s) 4-6, 14-16, 23, 24, 26, 27 and 29 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 24 March 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Amendment filed on 01/20/2004 has been entered. Claims 1-30 are pending in this Office action. New claims 23-30 are added.

Response to Arguments

2. Applicant's arguments with respect to claims 1-6, 11-16, and 20-22 have been considered but are moot in view of the new ground(s) of rejection.

3. The objection of claims 4-10, 14, 16, and 21 has been withdrawn after claims being corrected.

4. The objection of the drawings has been withdrawn after claim being clarified.

Claim Objections

5. Claim 29 is objected to because of the following informalities: in line 2, "quadrature modulating means" should be changed to -- quadrature demodulating means --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-2, 11-12, 25, 28 are rejected under 35 U.S.C. 102(a) as being anticipated by admitted prior art.

Regarding claims 1 and 11, admitted prior art in Applicant's specification, see figure 12 of the drawings, figure 12 illustrates a conventional multi-band transceiver including a receiving section, a transmitting section, and a band-switching signal 153. The receiving section includes a quadrature demodulator 1208 a reception signal into quadrature components. The quadrature demodulator 1208 includes a pair of mixers 109 and 110, a local oscillator 111 for producing a local oscillation signal, a phase shifting means $\Pi/2$ for shifting phase of the local oscillation signal. Based upon the band switching signal 153, the phase shifting means $\Pi/2$ supplies phase shifted local oscillation signals 155 156 to both mixers 109 110.

Regarding claim 2 and 12, similar to the argument as in claim 1, the transmitting section includes a quadrature modulator 1218 for converting a quadrature baseband signal 657 and 658 into a transmission IF signal. The quadrature modulator 1218 includes mixers 609 610 for converting a quadrature baseband signal 657 and 658 into a transmission IF signal, a local oscillator 611 for producing a local oscillation signal, a phase shifting means $\Pi/2$ for shifting phase of the local oscillation signal. Based upon

the band switching signal 153, phase shifting means $\Pi/2$ supplies phase shifted local oscillation signals 655 656 to both mixers 609 610.

Regarding claims 25 and 28, referring to figure 12, phase shifting means $\Pi/2$ inherently delaying the phase of one of the local oscillation signal by $\Pi/2$ and advancing the phase of the other local oscillation signal by $\Pi/2$ as claimed in the pending patent application in response to the band switching signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 3, 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Otaka U.S. Patent 6,148,181.

Regarding claims 3 and 13, said claim is rejected using similar rejection argument of claims 1 and 2. However, figure 12 differs from the claimed invention that the transceiver in figure 12 uses separate local oscillators and phase shifters for the quadrature modulator and quadrature demodulator. Nevertheless, utilization of a single local oscillation means and phase shifting means is not new in the art of communications. Otaka discloses in another US patent a radio apparatus comprising a local oscillation signal generating means 17, e.g. see figure 12, for providing local

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oscillation signals with different phases to both quadrature demodulator 19 and quadrature modulator 23. As appreciated by one of ordinary skill in the art that phase shifting means is embedded in the local oscillation signal generating means 17, which provides cos and sin signals to quadrature demodulator 19 and quadrature modulator 23. It would have been obvious for one of ordinary skill in the art at the time the invention was made that admitted prior art could be modified to include Otaka teachings because the modification would not change the principle operation of admitted prior art. Based upon the band switching signal 153, the local oscillation signal generating means 17 provides phase shifted local oscillation signals to both mixers 609 610 and both mixers 109 110.

Regarding claim 22, said claim is rejected using similar arguments as in claim 1. Admitted prior art does not expressly disclose phase shifting means for shifting a phase of the local oscillation signal to ensure consistent polarities of quadrature components of the reception baseband signal as claimed. Nevertheless, one of ordinary skill in the art would easily make the modification so that the polarities of quadrature components are always consistent.

Allowable Subject Matter

8. Claims 4-6, 14-16, 23-24, 26-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 7-10, 17-20, 30 are allowed over prior art.

Regarding claims 7-9 and 17-20, prior art of record does not teach or suggest the following claimed features "storage means for saving thereinto discrete data of a frequency pattern component functioning as a base" and "address generating means for generating an address every pre-selected clock" and "first analog converting means for analog converting data which is read out by addressing said storage means based on the address outputted from said address generating means..." and "second analog converting means for analog converting data which is read out by addressing said storage means based on the output of said phase shift means...".

10. Claim 21 is allowed over prior art.

Regarding claim 21, prior art of record does not teach or suggest the following claimed features "phase shifting means for shifting a phase of said local oscillation signal for input to one of said pair of first quadrature mixers" and "means for optionally changing a phase of said local oscillation signal for input to another of said pair of first quadrature mixers based upon said band switching signal to thereby ensure correct polarities of quadrature components".

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 703-305-2384. The examiner can normally be reached on Tuesday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT



MOHAMMAD H. GHAYOUR
PRIMARY EXAMINER